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SUBSPECIES OF MYRMICA LATREILLE
(HYM.: FORMICIDAE)

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**Descriptions of New North American Species and
Subspecies of *Myrmica* Latreille
(Hym.: Formicidae)**

NEAL A. WEBER

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The descriptions of the following new *Myrmica*s are taken from a general revision of this genus in order to validate their names in studies by several students of ants which have appeared since 1935. Drawings, keys, ecological and other biological information, and locality lists of these forms are included in the revision. The members of this genus vary considerably, even within the same colony. Probably for this reason in large part only one form has been described from North America in over 30 years. Variation is particularly noticeable in the worker caste and it should be emphasized that frequently no satisfactory determination can be made of specimens unless at least the male caste is present with workers from the same nest. Identification of single specimens of *Myrmica* is therefore likely to be as unsatisfactory as identification of single workers of some species of genera such as *Crematogaster*, *Formica* and *Campanotus*.

Cotypes of these forms are in my collection and the Museum of Comparative Zoology.

***Myrmica sabuleti* Meinert ssp. *americana* n. ssp.**

Worker: Length 4.6—6.2 mm.

Antennal scape exceeding posterior margin of head by a distance equal to its distal diameter; seen from above, when the scape is extended posteriorly towards the mid-occiput, the lateral margin (towards the eyes) is sigmoid, the medial margin nearly straight and the distal end distinctly turned medially, this end $\frac{1}{3}$ larger in diameter than the proximal end. Proximal end of scape joined to the head by a right-angled bend, the latter with a nearly vertical, high lamina which is prolonged a trifle along the sides; lamina, viewed postero-medially, in the form of an acute tooth or keel; joints 1 and 2 of the funiculus together distinctly longer than 3—5 together. Thorax, in profile, slightly convex, with distinct and rounded mesoepinotal suture; epinotal spines, from the side, distinctly longer than the declivity ventral to them, projected upwards and backwards at about a 55° angle; seen from above, moderately diverging, about $\frac{1}{2}$ longer than the distance between their bases. Petiole, in profile, with concave anterior face meeting the dorsal convex surface at a rounded angle, as long from apex of ventral tooth to postpetiole as it is high; postpetiole, in profile, with nearly plane ventral surface and convex dorsum, as high as long. Gaster ovate. Legs of moderate length.

Surface of head regularly and moderately sculptured; frontal area distinct, finely striate-punctate; clypeus with 10—14 rugae; median dorsal region with regular, comparatively close-set, rugae which diverge to the

posterior angles; posterior surface reticulate, lateral surfaces rugose-reticulate. Thorax coarsely and sharply rugose, slightly vermiculate dorsally. Petiole dorsally with deep, irregular, vermiculations, laterally deeply and more regularly rugose; postpetiole rugose, dorsally somewhat concentrically rugose. Surfaces of body, except gaster, punctate at the base of the sculpturing. Gaster smooth and shining.

Pilosity moderate; hairs coarse, truncate or acute; appendages with moderately coarse, subappressed hairs; no pubescence on legs.

Color of head brown, of thorax and appendages ferruginous, gaster dark brown, lighter apically.

Female: Length 5.2—7 mm.

Similar to the worker and with equally high lamina on the antennal scape, the latter prolonged slightly more on the medial margin.

Differing in the following: Epinotal spines shorter than the declivity ventral to them, stout and bluntly tipped. Petiole, in profile, with faintly concave anterior face, slightly longer from apex of ventral tooth to postpetiole than it is high. Postpetiole with plane ventral and convex dorsal surface, distinctly higher than long.

Sculpturing of the head less regular. Pronotum at the sides deeply vermiculate-rugose, reticulate only at the very anterior margin; posterior sides of thorax evenly rugose; scutum of mesonotum with elongate antero-median smooth area from which radiate fairly even rugosities, somewhat vermiculate on the sides. Pedicel deeply sculptured as in the worker.

Pilosity moderately abundant, partly truncate, partly acute; legs with appressed hairs but without pubescence.

Color of head ferruginous, brownish mid-dorsally; thorax ferruginous with two elongate parapsidal brown blotches on the mesonotum; remainder of body and appendages ferruginous, gaster with a brown transverse, medial band. Wings hyaline with a brownish cast; veins brown.

Male: Length 5.2—6.6 mm.

Antennal scape subcylindrical, somewhat larger in diameter distally, evenly bent at a slight angle at the basal $\frac{1}{4}$, equal in length to from 4—5 of the following segments together; funicular club indistinctly 4—5 jointed. Epinotal declivity armed dorsally with two distinct subacute or rounded tubercles. Petiole, in profile, with plane anterior face and convex dorsal surface; postpetiole, in profile, $\frac{1}{4}$ higher than the petiole, dorsal surface convex, ventral surface nearly plane to slightly convex. Sagittae of the genitalia with 25—31 serrations.

Surface of head shining, with comparatively numerous rugae, punctate at the base of the sculpturing; thorax shining, abundantly rugose-striate except on the largely smooth scutum of the mesonotum, punctate at the base of the sculpturing; petiole thinly but distinctly rugose, finely punctate basally; postpetiole and gaster smooth and shining.

Pilosity moderately abundant, acute, fine. Appressed pubescence on the antennae and legs.

Color of head blackish brown, remainder of body and appendages dark brown; pedicel and base of gaster, antennal club and tarsi lighter brown. Wings hyaline with a brownish cast; veins brown.

Described from two colonies taken by W. M. Wheeler at Colebrook, Connecticut, August 16 and 24, 1904. This subspecies has a wide distribution in the United States and I have taken it in such representative states as Massachusetts (Blue Hills, Newton, Woods Hole); Pennsylvania (Towanda); North Dakota (Grand Forks, Bismarck, Towner, Mercer, Stanton, Grassy Butte); Colorado (Cebolla); and Utah (Bryce Canyon). I have also taken it in Manitoba (Wawanesa, Sidney).

Many workers of this subspecies and *fracticornis* Emery cannot be separated satisfactorily without the additional evidence of the males. The higher lamina or keel of the scape and its prolongation distally, with the comparatively flat ventral surface of the postpetiole, readily separates most of the *americana* workers from the corresponding slight transverse keel and convex ventral postpetiolar surface in *fracticornis*; there are specimens, however, which combine a high keel on the scape with a distinctly convex postpetiole, or a slight keel with a nearly flat ventral surface of the postpetiole. These may be considered transitional in the absence of the males.

The worker is readily separated from the worker of the subspecies *nearctica* by the shorter distal extension of the keel on the scape and the higher and thinner transverse portion; the ventral surface of the postpetiole is also nearly plane instead of distinctly convex. The males can be readily separated from those of *nearctica* by the longer antennal scape and distinct epinotal tubercles.

This variety, on the whole, is larger, paler and an inhabitant of warmer and dryer situations than either the subspecies *nearctica* or *fracticornis*.

***Myrmica sabuleti* Meinert ssp. *hamulata* n. ssp.**

Worker: Length 3.9—5.2 mm.

Antennal scape, extending barely to the occipital margin; seen from above, when extended posteriorly towards mid-occiput, the lateral margin is feebly sigmoid, the medial margin more distinctly sigmoid, produced in a distinct bend laterally at the distal end and inwardly, or medially, at the proximal end; this end with a conspicuous high, thin, lamina extending completely around it and produced medially in an acute hook; proximal end of scape joined to the head by a right-angled bend from which the lamina projects medially as a large, acute tooth; antennal club quite distinctly 3-jointed, last segment nearly as long as the two preceding together. Thorax, in profile, convex, with a shallow, obtuse mesoepinotal

suture; epinotal spines, in profile, extending upwards and backwards at a 45° angle, longer than the declivity ventral to them, slender, acutely pointed; from above, moderately diverging, about $1\frac{2}{3}$ longer than the distance between their bases. Petiole, in profile, with anterior face barely concave, meeting the dorsal surface at about a 100° rounded angle, a little higher than the distance between the apex of the ventral tooth and the postpetiole; postpetiole, in profile, with convex dorsal and ventral surfaces, about $\frac{2}{3}$ as long as high. Gaster ovate. Legs of moderate length.

Surface of the head rather deeply sculptured, several mid-dorsal rugae bounded by vermiculations, becoming reticulate on the sides and posterior surface. Surface of the thorax deeply vermiculate longitudinally, sides more rugose. Petiole deeply vermiculate; postpetiole more rugose, with a narrow mid-dorsal longitudinal band of fused rugae. Gaster smooth and shining. Base of the sculpturing not distinctly punctate.

Pilosity moderately abundant, dorsal hairs mostly truncate; subappressed hairs on the legs; no pubescence.

Color of body dark brown with head and gaster nearly black; appendages brown; hairs bright yellow.

Female: Length 4.9—5.7 mm.

Similar to the worker, with the following differences: Lamina of the antennal scape more erected proximally and the hook projected somewhat downward. Epinotal spines shorter than the declivity ventral to them, bluntly tipped. Anteromedian triangular area of the scutum of the mesonotum smooth and shining, from which extend several rugae posteriorly and a moderate number of lateral rounded vermiculations.

Color largely dark brown dorsally and more ferruginous on the sides and appendages. Wings hyaline; veins pale brown.

Male: Length 4.2—5 mm.

Antennal scape equal in length to from 2—3 of the following joints together, bent at the basal $\frac{1}{3}$ and incrassate immediately distal to the bend; funicular club indistinctly 5-jointed. Epinotal declivity with two distinct dorsal tubercles. Petiole, in profile, with dorsal surface convex, as long from apex of the slight ventral tooth to postpetiole as it is high; postpetiole nearly $1\frac{1}{2}$ times as high as long, dorsally and ventrally convex. Sagittae of the genitalia with 19—22 serrations.

Sculpturing of head sparsely and feebly rugose, densely punctate. Dorsal surface of thorax shining, sparsely and feebly rugose, sides more coarsely rugose and punctate. Petiole punctate, with a few feeble rugae; postpetiole and gaster smooth and shining.

Pilosity moderately abundant, acute and fine, subappressed on the appendages.

Color moderately dark brown, head and gaster somewhat darker; wings hyaline, veins pale brown.

Described from a colony of all castes taken by W. M. Wheeler at Hayne's Canyon, 8,000 feet, Sacramento Mts., New Mexico, July 3, 1917.

This extreme form of *sabuleti* may be separated readily from the subspecies *nearctica* and *americana* by the shorter antennal scape in the male and, in the workers and females, by the unusual prolongation of the lamina of the scape into a hook on the medial surface.

***Myrmica sabuleti* Meinert ssp. *nearctica* n. ssp.**

Worker: Length 3.4—4.4 mm.

Frontal carina comparatively large, auriculate and erect. Antennal scapes barely exceeding posterior margin of head; seen from above, straight, subcylindrical, bent slightly outwards distally; with a thickened, subopaque lamina extending the entire distance around the bend and along the medial margin (when the scape is extended posteriorly towards mid-occiput) fully a third the length of the scape, the lamina slightly raised at the bend but horizontal along the medial margin and even with the dorsum of the scape, the scape at the bend thickened in diameter; scape, from a posteromedial view, much thickened at the bend, which is nearly right-angled, narrow and compressed immediately distal to the bend, normally shaped at the distal $\frac{2}{3}$; joints 1 and 2 of the funiculus together about $\frac{1}{2}$ shorter than joints 3—5 together. Thorax, in profile, convex, evenly and distinctly impressed at the mesoepinotal suture; epinotal spines, in profile, slender, acute, with apices upturned, directed upwards and backwards at a 55° — 65° angle, a little shorter than the declivity ventral to them; from above, slightly longer than the distance between their bases, widely diverging. Petiole, in profile, with slightly concave anterior face meeting the nearly flat dorsal surface at a rounded right angle, about as long from apex of ventral tooth to postpetiole as it is high; postpetiole, in profile, with distinctly convex ventral surface, produced anteriorly, and convex dorsal surface produced posteriorly; nearly twice as high as long. Gaster ovate. Legs moderately long and slender.

Surface of head largely reticulate-vermiculate, with few longitudinal rugae on the mid-dorsal surface; frontal area distinct, smooth and shining except for sparse punctures. Dorsal surface of thorax coarsely reticulate-vermiculate, mostly reticulate, sides coarsely rugose, vermiculate anteriorly. Petiole moderately vermiculate dorsally, more regularly rugose laterally; postpetiole shallowly rugose, smooth and shining on a mid-dorsal longitudinal area. Base of sculpturing on body, except on gaster, abundantly punctate. Gaster smooth and shining.

Pilosity moderate, comparatively fine, hairs truncate or acute; legs with subappressed hairs; no pubescence.

Color of head from ferruginous to dark brown, thorax also variable but lighter, gaster dark brown, appendages ferruginous to brown.

Female: Length 5—5.7 mm.

Similar to the worker, with the following differences: Lamina of the scape especially at the bend, somewhat raised. Epinotal spines a little shorter and blunter, pointed downwards slightly.

Sculpture of head more regularly rugose. Sides of thorax rugose, anterior margin of pronotum vermiculate-reticulate; scutum of mesonotum with an anterior triangular smooth area, posteriorly followed by several rugae and, laterally, by rounded, open vermiculations. Pedicel deeply rugose, more vermiculate dorsally.

Pilosity moderately abundant, finer and subappressed on the gaster; subappressed hairs on the legs; no pubescence.

Color of head ferruginous, infuscated dorsally; thorax lighter ferruginous, mesonotum with distinct anteromedian and parapsidal brown blotches, several median blotches on the sides; pedicel and appendages light ferruginous; gaster dark brown, wings hyaline; veins light brown.

Male: Length 4.3—4.7 mm.

Antennal scape subcylindrical, slightly incrassate towards the middle, $2\frac{1}{2}$ times as long as wide, shorter than the 3 following segments of the funiculus together; antennal club 4-jointed; epinotal declivity armed dorsally with two low and indistinct tubercles. Petiole a little longer from apex of ventral tooth to postpetiole than it is high, evenly convex above; postpetiole $1\frac{1}{2}$ times as high as long, convex dorsally, less convex ventrally, slightly higher than the petiole. Sagittae of the genitalia with 21—24 teeth. Gaster ovate. Legs moderately long and slender.

Surface of head somewhat shining, thickly punctate, with sparse, low, rugae. Scutum of mesonotum mostly smooth and shining; sides thickly punctate, margins sparsely rugose; petiole finely punctate; postpetiole and gaster smooth and shining.

Pilosity moderate, erect, coarse, and truncate on the head, thorax and appendages, otherwise largely fine and acute; no pubescence.

Color brown, dark brown on the head. Wings hyaline; veins whitish to brown.

Described from colonies taken by myself 14 miles southwest of Towner, North Dakota, June 5, 1932 (type colony and locality) and at Wawanesa, Manitoba, July 2, 1933. Syntype colonies were taken by W. M. Wheeler at Cheyenne Canyon and Buena Vista, Colorado. My colonies were both in the woods along the Souris or Mouse River, which drains eventually to Hudson Bay. September 5, 1937 the exact locality of the Dakota collection was revisited and a small colony of this subspecies found. This subspecies is widely distributed in North Dakota as evidenced by the following records: Chaffee, Hunter (C. Schonberger); Grand Forks (L. Monda, N. A. Weber); Arvilla, Killdeer Mts. (E. & G. Wheeler, N. A. Weber); Mikkelson (J. E. Goldsberry); Grafton, Towner, Breien, junction of Cannonball and Missouri Rivers (N. A. Weber).

***Myrmica brevinodis* Emery ssp. *discontinua* n. ssp.**

Worker: Length 3.3—4.2 mm.

General habitus as in *brevispinosa*, with the following differences: Antennal scape at the base more compressed, with a distinct keel on the proximal part at the medial angle of the bend (when the scape is extended posteriorly towards the mid-occiput), which may be prolonged distally and bifurcated, following the lateral and medial margins for a slight distance; similar in this to *fracticornis* but the keel is not transverse, but V-shaped. Thorax, in profile, with feebly impressed mesoepinotal suture; epinotal spines slender, acute; in profile, produced backwards and upwards at a 40—50° angle, distinctly longer than the excision of the lamina beneath them; from above, distinctly longer than the distance between their bases, diverging. Postpetiole, in profile, less than $\frac{1}{2}$ as long as high.

Sculpturing of the head comparatively fine, most of the median dorsal surface closely and regularly rugulose, more open and reticulate on the sides. Dorsal surface of thorax moderately reticulate-vermiculate, becoming finer posteriorly; sides finely rugulose. Petiole feebly reticulate on dorsal surface; sides of pedicel thinly rugulose; dorsal surface of postpetiole smooth, except for punctations. Whole surface of body, except gaster, densely and conspicuously punctate.

Color dark brown; head and gaster nearly black.

Cotypes: A series of workers taken by W. M. Wheeler at Topaz Butte, Florissant, Colorado, July 15, 1906. Syntypes are from the following localities: Bay of Islands, Newfoundland (no collector); Pleasantfield, Nova Scotia (W. H. Prest); Mikkelson, North Dakota (J. E. Goldsberry); Yellowstone Park, Wyoming (A. C. Cole).

This variety can be readily distinguished from *brevispinosa* by the greater development of a keel on the scape, longer epinotal spines, smaller size and darker color. It appears closer to *fracticornis* but for the strikingly smooth and punctate surface. A male on the same pin with the North Dakota specimens is very much like a *fracticornis* male and with the antennal scape equal in length to from 5—6 of the following joints together. The Wyoming specimens have the thorax unusually smooth. The exact status of this form must await the certain correlation of the males.

The Nova Scotia workers were taken from their "nests in moss of meadow, a few inches above water (with aphids)."

***Myrmica wheeleri* n. sp.**

Worker: Length 3.3—4.2 mm.

Head, between eyes, 0.67 as wide as long (with mandibles); occipital margin straight; anterior clypeal border produced over base of mandibles in about a 130° lobe. Antennal scape exceeding the posterior margin of the head by a distance equal to its distal diameter; from above, when

extended posteriorly towards mid-occiput, in the form of a long drawn-out sigmoid curve, evenly bent at its proximal $\frac{1}{4}$, about 0.6 as wide proximally as distally; joints 1—2 of the funiculus together equal in length to joints 3—5 together; club 3-jointed, terminal joint equal in length to the preceding two joints together. Thorax, in profile, convex, with a slight but distinct mesoepinotal suture; epinotal spines, in profile, triangular with deflected apex, projected backwards and upwards at about a 45° angle, appreciably shorter than the declivity ventral to them, from above, about as wide as the distance between their bases, widely diverging. Petiole, in profile, with distinctly concave anterior face forming a sharp 90° angle with the convex dorsal surface; ventral surface concave, shorter from apex of ventral tooth to postpetiole than it is high; postpetiole, in profile, slightly higher than the petiole and higher than long, dorsal and ventral surfaces convex, the ventral convexity produced anteriorly as a lobe. Gaster ovate. Legs moderately long and slender.

Surface of head finely sculptured and shining, clypeus very sparsely and irregularly rugose, shining, frontal area triangular, smooth and shining, mid-dorsal surface longitudinally rugulose, becoming reticulate laterally and posteriorly. Thorax feebly sculptured, shining, with large, irregular vermiculations dorsally, feeble and sparse vermiculations on the sides. Petiole feebly vermiculate-reticulate on the node; postpetiole dorsally smooth and shining, laterally with a few irregular vermiculations. Base of the sculpturing of body, except gaster, densely, though shallowly punctate. Gaster, antennae and legs smooth and shining.

Pilosity comparatively abundant and fine, mostly truncate dorsally, subappressed on the legs; pubescence only on the antennal funiculi.

Color varying from light to dark ferruginous, head brown to dark brown, gaster with a broad, dark transverse band across the middle.

Female: Length 4.5—5.2 mm.

Closely resembling the worker. The epinotal spines vary in length from worker size and shape to shorter, blunt teeth. The petiole is higher and more distinctly separated into node and peduncle.

The sculpturing is appreciably coarser, the pronotum, on the sides, reticulate, rugose only at the posterior margin, thoracic sides otherwise rugose, scutum of mesonotum shining, with anteromedial triangular area punctate, otherwise feebly vermiculate, becoming more rugose posteriorly.

Color darker; head, thorax and transverse band across gaster dark brown; pedicel and appendages ferruginous. The thorax in several is ferruginous with brown blotches. Wings hyaline; veins pale brown, stigma large and pale brown in color.

Male: Length 3.6—4.3 mm.

Antennal scape equal in length to the following 3 segments together, subcylindrical, about $\frac{1}{4}$ as wide as long, bent slightly at the base; funicu-

lar club 4-jointed. Epinotal declivity dorsally with two slight, rounded gibbosities. Petiole, in profile, distinctly arched, anterior and ventral surfaces slightly concave, dorsal surface convex, slightly longer from apex of ventral tooth, or gibbosity, to postpetiole than it is high; postpetiole about $\frac{1}{2}$ higher than petiole and distinctly higher than long. Sagittae of the genitalia with about 17 serrations; volsellae unique in the absence of a medial tooth inside the hook.

Surface of the head finely and evenly punctate, nearly devoid of rugosities. Thorax largely punctate, smooth and shining mid-dorsally, a few scattered rugae on the sides; petiole punctate, with sparse, feeble rugae. Postpetiole and gaster smooth and shining.

Pilosity sparse, fine, acute.

Color brown, dark brown on the dorsal surfaces of the head and thorax. Wings hyaline with a purplish sheen; veins pale gray, stigma large and gray in color.

Described from two colonies collected by W. M. Wheeler, July 26 and 27, 1917, on Mt. Lemmon, 8—9,150 feet, and at Stratton, 6—7,000 feet, in the Santa Catalina Mts., Arizona.

This species could easily have been taken for a small form near *M. brevinodis* ssp. *brevispona* were it not for the utterly different volsellae of the male genitalia. The sculpturing of the worker and male is finer than in any other North American *Myrmica*; the short epinotal spines of the worker differ from those of *brevispona* in being stouter and deflected, resembling, in profile, the horns of *Bison bison*, the American buffalo.

The examination of hundreds of male genitalia and the uniformity in general habitus and size within a species convinces me that this ant can only be regarded as a distinctly new North American species. The volsellae of the genitalia are distinct from those in any other *Myrmica* and closest to those of *M. moravica* Soudek from Southern Europe.